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The Influence of Brand Perceptions and Consumer Behavior on Green Lifestyle Adoption in Malaysia: An Empirical Study

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ABSTRACT

This study explores the factors affecting Malaysian consumers' adoption of green lifestyles, emphasizing brand credibility, loyalty, expertise, environmental awareness, and value perception. It aims to offer insights for businesses to develop effective green marketing strategies that promote sustainable consumer behaviour. This study adopted a quantitative research design, utilizing an online survey distributed to 400 Malaysian respondents through purposive sampling. Participants were selected based on their active engagement in green lifestyles or interest in eco-friendly products. Data analysis was conducted using SPSS, incorporating descriptive and inferential statistics, including correlation and multiple regression analysis. The results indicate strong relationships between brand credibility, loyalty, expertise, and the adoption of green lifestyle choices. Additionally, environmental awareness and consumer value perception play key roles in driving eco-friendly behaviours. The findings suggest that building brand trust and making authentic green claims can effectively encourage consumers to adopt sustainable practices. This study expands the limited research on green consumer behaviour in Malaysia by applying the Theory of Planned Behavior (TPB) and the Customer Perceived Value (CPV) model within green marketing. It provides practical recommendations for businesses and policymakers to encourage sustainable consumption through strategic branding and marketing that align with consumer values and environmental concerns.

1. INTRODUCTION

In recent decades, growing environmental concerns such as climate change, pollution, and resource scarcity have driven individuals and organizations to adopt more sustainable practices [1]. This shift has led to the rise of the green lifestyle, which focuses on reducing resource consumption and minimizing environmental impact [2]. A green lifestyle includes practices like waste reduction, energy conservation, and purchasing sustainably produced products [3]. Individuals contribute by recycling, using renewable energy, and opting for eco-friendly transportation [4]. As consumer environmental awareness increases, businesses face mounting pressure to adopt sustainable practices, driving the growth of green marketing. This approach promotes eco-friendly products and highlights sustainability [5].

The success of green marketing depends on brand credibility, as consumers are more likely to trust companies with a genuine commitment to sustainability [6]. Brand loyalty significantly supports green lifestyles, as consumers prefer brands aligned with their environmental values [7]. Loyal customers act as brand advocates, boosting credibility and reach [8]. Brand expertise also matters in green markets; consumers trust brands demonstrating sustainability knowledge through transparency, certifications, or partnerships [9, 10]. Environmental awareness promotes green choices as consumers become more informed [11]. However, green engagement varies across demographics, indicating the need for targeted awareness [12]. Perceived value also shapes green behaviour, with consumers weighing environmental and social benefits alongside price and quality [13, 14]. Brands promoting long-term eco-benefits are more likely to inspire action.

Although green marketing is rising globally, limited research in Malaysia explores how brand credibility, loyalty, expertise, awareness, and value perception affect green lifestyles. This study fills that gap by analyzing these factors' influence on consumer decisions, aiding both marketers and

policymakers. As environmental concerns grow, demand for sustainable products rises [15]. Still, the link between branding and green adoption in Malaysia is unclear. While green marketing appeals to eco-conscious buyers, greenwashing erodes trust [16]. Despite growing awareness, green practices remain inconsistent, with concerns over cost and efficacy also deterring adoption [17].

This study aims to explore these factors and how brands can effectively engage eco-conscious consumers in Malaysia. A green lifestyle focuses on minimizing environmental impact through practices such as conserving energy and water, recycling, and choosing eco-friendly products [18]. It also extends to broader efforts like adopting renewable energy, reducing fossil fuel consumption, and supporting sustainable agriculture [19]. These behaviors contribute to systemic changes, including sustainable urban planning and corporate responsibility. Environmental awareness encourages individuals to embrace sustainable alternatives, such as reducing plastic waste and purchasing organic, locally sourced food [20].

1.1 Research question

The research questions aim to explore the key factors, particularly to brand credibility, loyalty, expertise, environmental and consumer value perception that influence green lifestyle choices among Malaysian consumers.

i. Does brand credibility influence green lifestyle choices among Malaysian consumers?
ii. What is the relationship between brand loyalty and green lifestyle choices in Malaysia?
iii. To what extent does brand expertise affect green lifestyle adoption among Malaysian consumers?
iv. Does consumer value perception influence the decision to adopt green lifestyle choices in Malaysia?
v. Does environmental awareness impact the adoption of green lifestyle choices among consumers in Malaysia?

1.2 Research objective

The research objectives are designed to address the key factors identified in the research questions. The study aims to examine how brand credibility, loyalty, expertise, and environmental awareness impact green lifestyle choices in Malaysia. Additionally, it explores how consumers' perception of value in green products influences their decision to adopt sustainable practices.

i. To examine the impact of brand credibility on green lifestyle choices among Malaysian consumers.
ii. To assess the relationship between brand loyalty and the adoption of green lifestyle choices in Malaysia.
iii. To analyse the influence of brand expertise on consumers' green lifestyle choices in Malaysia.
iv. To investigate how consumer value perception affects the adoption of green lifestyle choices in Malaysia.
v. To examine the role of environmental awareness in shaping green lifestyle adoption among Malaysian consumers.

2. LITERATURE REVIEW

The green lifestyle traces its roots back to the late 19th and early 20th-century environmental movement, which emphasized resource conservation and wildlife protection. Modern environmentalism gained momentum in the 1960s and 1970s, driven by Rachel Carson's Silent Spring (1962) and initiatives such as Earth Day (1970), the establishment of the U.S. Environmental Protection Agency (EPA), and stricter pollution regulations. By the 1980s and 1990s, green consumerism was on the rise, fueled by growing demand for eco-friendly products and global agreements like the Brundtland Report (1987) and the Rio Earth Summit (1992), which helped define sustainable development.

In the 21st century, the green lifestyle has evolved to address climate change, resource depletion, and broader sustainability challenges. International agreements such as the Kyoto Protocol (1997) and the Paris Agreement (2015) set crucial emission reduction targets [21]. The concept of a green economy has further integrated sustainability into policy and business, with advancements in renewable energy, electric vehicles, and the circular economy driving resource efficiency [22, 23]. Individuals adopt sustainable practices like minimalism, plant-based diets, and eco-friendly fashion, despite challenges such as greenwashing and cultural barriers [24, 25].

The adoption of green lifestyles is becoming increasingly important worldwide, driven by growing environmental awareness [26]. A green lifestyle integrates energy efficiency, waste reduction, sustainable food choices, eco-friendly transportation, ethical consumerism, and water conservation [27]. Understanding environmental issues plays a key role in shaping sustainable consumption behaviors. In Malaysia, factors such as brand credibility, loyalty, expertise, environmental awareness, and consumer value perception influence individuals' choices regarding green lifestyles. The Theory of Planned Behavior (TPB) and the Customer Perceived Value (CPV) model provide insights into the cognitive and emotional aspects of green consumer behavior.

Adopting a green lifestyle, encompassing sustainable behaviours and eco-friendly consumption, benefits individuals, society, and the environment. It reduces carbon footprints [28]. Additionally, it supports waste reduction, resource conservation, and organic farming, preserving biodiversity [29, 30], while water conservation safeguards freshwater resources and minimizes pollution [31]. The health benefits include cleaner air, reduced respiratory issues, and plant-based diets that lower chronic disease risks [32]. Connecting with nature alleviates stress and anxiety, improving mental well-being. Economically, green living promotes long-term savings through energy-efficient technologies [33] and supports local eco-friendly businesses, enhancing economic resilience [34]. The growing demand for sustainable products boosts sectors like renewable energy and organic food, driving job creation and innovation [35]. Socially, it fosters ethical consumption, responsible corporate practices, and community engagement [36, 37]. On a global scale, green lifestyles combat deforestation, water scarcity, and climate change [38]. Reducing emissions, adopting renewable energy, and using low-carbon transportation contribute to a sustainable future [39].

In Malaysia, a green lifestyle is essential for addressing deforestation, pollution, waste, and climate change [40]. Urban areas increasingly adopt recycling, energy conservation, and eco-friendly consumption, supported by government initiatives like "No Plastic Bag Day" and incentives for energy-efficient appliances [41]. However, rural areas face infrastructure gaps, while high costs deter lower-income

households [42]. With government support, corporate responsibility, and rising eco-consciousness, particularly among youth, sustainability efforts are expected to accelerate, aligning with Malaysia's environmental goals [43].

2.1 Theoretical and conceptual framework

The study of factors influencing green lifestyle choices among Malaysian consumers is grounded in two well-established theories: the TPB and the CPV model. These frameworks help explain consumer decision-making in adopting environmentally sustainable lifestyles, addressing both the cognitive and value-driven aspects of behavior.

2.1.1 Theory of Planned Behaviour (TPB)

The TPB, developed by Ajzen (1991), explains how attitude, subjective norms, and perceived behavioral control shape an individual's intention to engage in a particular behavior. Attitude refers to one's positive or negative perception of a behavior, and in this context, a favorable attitude toward eco-friendly products encourages the adoption of a green lifestyle. Subjective norms relate to social influence, where individuals are more likely to embrace sustainable practices if they experience societal or peer pressure. In Malaysia, social norms play a significant role in shaping green purchasing behaviors.

Perceived behavioral control reflects an individual's confidence in their ability to adopt a behavior, which is influenced by factors such as product availability, cost, and awareness of eco-friendly options. TPB is particularly relevant in this study as it links environmental awareness and brand credibility to green lifestyle choices. Environmental awareness shapes attitudes and perceived control, empowering individuals to make sustainable choices. Meanwhile, brand credibility strengthens subjective norms by fostering trust in green claims and reinforcing social pressure to support brands with strong eco-friendly reputations. TPB provides a useful framework for understanding how awareness and perceived control influence green behavior in Malaysia, connecting consumer attitudes with real-world sustainable actions.

2.1.2 Customer Perceived Value (CPV) model

Zeithaml's CPV (1988) model explains how consumers evaluate a product's value by weighing its perceived benefits against its associated costs. This concept is particularly relevant for green products, which are often considered more expensive but provide environmental benefits. The CPV model identifies two key components: perceived benefits—such as environmental sustainability, product quality, and brand reputation—and perceived costs, which include financial expenses, time, and effort. Green products generally have higher perceived costs due to premium pricing and limited availability.

In the context of this study, the CPV model helps explain how consumer perceptions of value influence the adoption of green lifestyles in Malaysia. While green products may be more costly upfront, consumers may recognize long-term benefits, such as improved health and environmental sustainability, as outweighing short-term expenses. The model also highlights the importance of brand expertise—companies with strong sustainability credentials can enhance perceived value by building trust and credibility. This study will examine how factors shaping the perceived value of green products can help brands attract value-conscious consumers in Malaysia.

By integrating the TPB and the CPV model, this study explores both cognitive and value-driven factors influencing green lifestyle choices. The TPB examines how attitudes, subjective norms, and perceived behavioral control shape consumer intentions to adopt sustainable practices [44]. Meanwhile, the CPV model provides insight into how consumers assess the benefits and costs of green products, highlighting the role of value perception in decision-making. Together, these theories offer a comprehensive framework for understanding how environmental awareness, brand credibility, brand expertise, and value perception drive sustainable behavior.

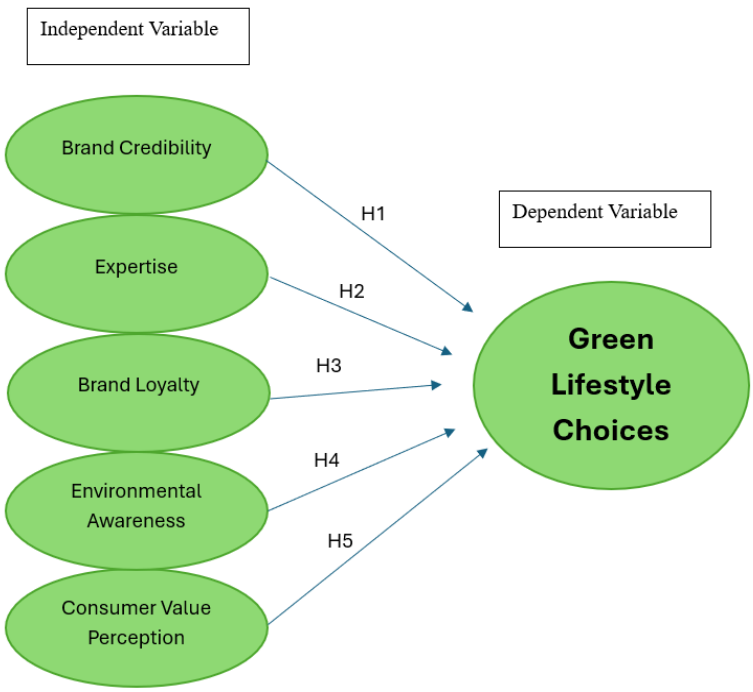

Figure 1. Conceptual framework of the relationship between the independent variables—brand credibility, brand expertise, brand loyalty, consumer value perception, and environmental awareness toward the dependent variable – green lifestyle choices

2.1.3 Conceptual framework

The conceptual framework presented in Figure 1 illustrates the relationship between five independent variables—brand credibility, brand expertise, brand loyalty, consumer value perception, and environmental awareness—and their influence on the dependent variable, green lifestyle choices.

2.2 Hypotheses development

2.2.1 Relationship between brand credibility and green lifestyle choices

Brand credibility is built on communication, trustworthiness, and expertise that plays a crucial role in shaping consumer perceptions in green marketing. Clear and effective sustainability messaging strengthens brand credibility [45], whereas greenwashing can harm a brand's reputation and equity. Green brand equity also acts as a mediator in this relationship, influencing how consumers respond to sustainability claims [46]. Research by Gorton et al. [47] found that eco-labels enhance a brand's sustainable image and promote environmental consciousness. Consumers prioritize brands demonstrating expertise in sustainability, and third-party certifications enhance trust. Strong brand credibility fosters green brand equity, increasing loyalty and preference [48]. As environmental awareness grows, credible green branding can drive consumer adoption of sustainable products and behaviours. Chen and Madni [49] found that social media significantly influences Gen Z's green consumption by raising environmental awareness, with eco-branding and eco-labelling moderating green intentions and behaviour. Therefore, it is hypothesized that:

H1: There is a positive relationship between brand credibility and green lifestyle choices among Malaysian consumers.

2.2.2 Brand loyalty and consumer green lifestyle choices

Brand loyalty in green marketing is shaped by environmental consciousness, trust, and value alignment. Ferreira and Fernandes [50] emphasized that eco-label consciousness enhances brand image and awareness, fostering loyalty. Rizomyliotis et al. [51] found that consumers with strong green consumption values show higher loyalty to environmentally aligned brands. In Malaysia, trust plays a crucial role, as Iqbal et al. [52] highlighted Green Brand Trust's positive effect on loyalty, reinforcing the need for authenticity. Pan et al. [53] demonstrated that green brand loyalty encourages positive word-of-mouth, promoting sustainable consumption. Leckie et al. [54] revealed that desired self-identity, green perceived value, and altruistic values contribute to green brand loyalty, though greenwashing perceptions weaken the effect. Chen et al. [55] highlighted that green practices enhance brand equity, with green brand attachment as a mediator. Thus, it is hypothesized that:

H2: There is a positive relationship between brand loyalty and green lifestyle choices among Malaysian consumers.

2.2.3 Brand expertise and green life style choices

Brand expertise is essential for consumer trust in green marketing, signalling competence in sustainability. Expertise promotes trust and encourages consumer engagement, particularly among younger consumers. In Malaysia, where environmental awareness is on the rise, brands can strengthen their credibility by showcasing expertise through certifications and strategic partnerships. Demonstrating sustainability expertise will not only enhance green brand equity [55] but also help mitigate concerns about greenwashing and fosters green innovation [56]. Brands recognized as sustainability leaders build consumer trust, reducing skepticism and encouraging long-term loyalty in Malaysia's evolving green market. Chaudhuri and Holbrook [57] highlighted that brand experience and personality positively influence brand loyalty, with green consumption values further reinforcing this relationship. Therefore, it is hypothesized that:

H3: There is a positive relationship between brand expertise and green lifestyle choices among Malaysian consumers.

2.2.4 Consumer value perception and consumer green lifestyle choices

According to Zheng et al. [58], perceived value plays a crucial role in shaping green purchasing decisions, acting as a mediator between social identity and green purchase intentions. Camilleri et al. [59] emphasize that consumers evaluate products based on their sustainability impact on their lives. Trust is a key factor in this process, as consumers are more likely to perceive value in eco-friendly products when they trust the brand's environmental claims. Savale et al. [60] highlight that green marketing strategies, such as eco-labels and sustainable practices, significantly shape consumer perceptions. According to Hoo et al. [61], consumer value perception in green products is influenced by environmental, social, and economic dimensions. Zheng et al. [58] explore how social identity affects green food purchase intentions through green perceived value and psychological distance. Camilleri et al. [59] further stress the importance of balancing economic, social, and environmental factors using the Triple Bottom Line (TBL) framework to appeal to a wider consumer base. Based on these insights, the following hypothesis is proposed:

H4: There is a positive relationship between consumer value perception and green lifestyle choices among Malaysian consumers.

2.2.5 Relationship between environmental awareness and consumer green lifestyle choices

Environmental awareness plays a crucial role in shaping green lifestyle choices by increasing individuals' understanding of environmental issues and their impact on both personal and societal well-being. Liu and Madni [62] found that environmental awareness positively influences green consumption, though cultural and cost-related factors can moderate this relationship. In Malaysia, growing awareness has led to a higher demand for sustainable alternatives, though cost remains a key consideration in purchasing decisions. Zubair Tariq [63] highlights that brand awareness, combined with authentic environmental claims, enhances green purchasing behavior and consumer satisfaction, emphasizing the importance of effective marketing in building long-term loyalty. Environmental awareness not only encourages sustainable consumption but also influences broader lifestyle changes. Liang et al. [64] extend the TPB, identifying the role of environmental awareness in green consumption intentions, which are further enhanced by education and income. In Malaysia, increasing awareness through education can drive consumers toward more sustainable choices. Thus, it is hypothesized that:

H5: There is a positive relationship between environmental awareness and green lifestyle choices among Malaysian consumers.

3. METHODOLOGY

This study aims to examine the influence of brand credibility, brand loyalty, brand expertise, environmental awareness, and consumer value perception on green lifestyle adoption in Malaysia. A quantitative research design is employed, utilizing numerical data to explore the relationships between variables, making it suitable for objective measurement of these factors. The research follows a cross-sectional survey approach, collecting data from respondents at one point in time through structured, close-ended questionnaires.

Primary data is collected through an online survey, focusing on green lifestyle choices and brand perceptions, particularly brand credibility. The study's sample size was determined using Krejcie and Morgan's [65] formula, which recommends a sample of 384 for populations exceeding 10,00,000. Accordingly, 400 valid responses were collected using Google Forms who actively engaged in green practices to ensure adequate statistical representation and generalizability of the findings. Data was collected through an online survey with a particular concentration of respondents from urban regions such as Kuala Lumpur, Johar Bahru, Ipoh and Selangor, where green lifestyle awareness is higher. A pilot test with 40 respondents refined the questionnaire before its full distribution.

The study targets Malaysian consumers aged 18 and above who are either actively engaged in or show interest in eco-friendly practices and possess purchasing power. The survey employs both nominal and ordinal scales to collect relevant demographic and behavioral data. Section A gathers demographic information, while Section B measures respondents' views on eco-friendly preferences and brand perceptions. The survey was included 30 questions, divided into sections corresponding to each research variable, brand credibility, brand loyalty, brand expertise, environmental awareness, consumer value perception and green lifestyle choices. The data collection process will last for about six weeks during November/ December 2024, during which respondents were asked to complete the survey within a 30-minute time frame. All responses will remain anonymous, and participation is completely voluntary. After data collection, the dataset tested for accuracy and reliability before using for descriptive and inferential statistics, such as correlation and regression analysis. This approach offers valuable insights into the factors influencing green lifestyle choices in Malaysia.

The measurement items for each construct were adapted from established literature to ensure content validity. Items for brand credibility were derived from Chin et al. [48], brand loyalty from Chaudhuri and Holbrook [57], brand expertise from Erdem and Swait [66], environmental awareness from Dunlap et al. [67]'s NEP scale, consumer value perception from Sweeney and Soutar [68]'s PERVAL scale, and green lifestyle choices from Sony and Ferguson [18]. All items were measured using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

To analyze the data, SPSS version 27 was first used for basic statistical tasks such as data cleaning, summarizing responses, and checking the reliability of the scales through Cronbach's alpha. Once the dataset was prepared, SmartPLS 4 was used to perform Structural Equation Modeling (SEM). This included evaluating the measurement model by examining factor loadings, average variance extracted (AVE), and composite reliability (CR)—as well as testing the structural model to assess the proposed hypotheses [69]. Using both SPSS and SmartPLS allowed us to take advantage of each tool's strengths: SPSS for its simplicity in handling descriptive statistics, and SmartPLS for its powerful capabilities in running variance-based SEM, especially suitable for exploratory and prediction-oriented research.

The Cronbach's Alpha was used to assess the questionnaire's internal consistency for constructs like brand credibility, brand loyalty, and environmental awareness. A value of 0.70 or higher indicated sufficient reliability. A pilot test with 40 respondents confirmed acceptable reliability, justifying full-scale data collection [70]. A subsequent test with 400 respondents will further validate the instrument, ensuring robust findings for statistical analysis. Descriptive statistics will summarize data using means, frequencies, and percentages to analyze demographics and attitudes toward eco-friendly products, brand credibility, loyalty, expertise, and environmental awareness [71]. Inferential statistics, including Pearson's correlation and multiple regression analysis, will examine relationships between independent variables (brand credibility, loyalty, and environmental awareness) and the dependent variable (green lifestyle choices). Pearson's correlation measures the strength of relationships, with coefficients ranging from -1 to +1 [72]. These analyses will explore factors influencing green lifestyle adoption in Malaysia.

Factor analysis will simplify data by grouping related variables into underlying factors. The Kaiser-Meyer-Olkin (KMO) measure will assess shared variance, while Bartlett's Test of Sphericity will confirm sufficient correlations among variables. These tests will ensure the dataset's suitability for factor analysis, enhancing the reliability of results. Multiple regression analysis, conducted with SPSS, evaluated the impact of brand credibility, loyalty, brand expertise, environmental awareness, and consumer value perception on green lifestyle choices.

4. DATA ANALYSIS AND RESULTS

This section provides the analysis and findings of the data collected to investigate the factors affecting green choices among consumers in Malaysia and is presented as follows.

4.1 Descriptive study

4.1.1 Demographic characteristics

This sub-section provides a comprehensive overview of the respondents' characteristics, ensuring a diverse representation of Malaysian consumers and their perspectives on green lifestyle choices.

a) Gender Distribution: The sample was predominantly female (55.3%), while 42% identified as male. Additionally, 2.7% of respondents preferred not to disclose their gender, contributing to a more inclusive understanding of consumer behavior.
b) Age Distribution: The majority of respondents were young adults, with 30.8% aged 25–34 and 26.5% in the 35–44 age group. Younger individuals (18–24 years old) made up 22% of the sample, while older age groups were represented by 15% in the 45–54 range and 5.8% aged 55 and above. This diverse age range ensures that the study captures varied perspectives across different life stages.
c) Educational Background: Respondents had diverse

educational qualifications, with nearly half (49.5%) holding a Bachelor's Degree, followed by 21% with a Master's Degree, and 14.5% having completed a Diploma. A smaller proportion (10.5%) had only a high school education, while 5.8% held a Doctoral Degree. This variety provides valuable insights into how educational attainment influences green lifestyle adoption.

d) Income Distribution: Income levels among respondents varied, with the largest group (41.8%) earning RM5,000–RM9,999 per month, followed by 32% earning RM2,000–RM4,999. A smaller proportion (14%) reported earning RM10,000 and above, while 12.3% had monthly incomes below RM2,000. This broad income range offers a well-rounded view of how economic factors may influence green lifestyle choices.

4.1.2 Descriptive statistics

The descriptive statistics summarize key variables in the study, including brand credibility, brand loyalty, brand expertise, consumer value perception, environmental awareness, and green lifestyle choices. Table 1 presents the mean and standard deviation for each variable, offering insights into respondents' overall perceptions and attitudes.

Table 1. Descriptive statistics for key variables

Variables	Mean	Standard Deviation
Brand Credibility	4.3480	0.44945
Brand Loyalty	4.1430	0.59535
Brand Expertise	4.3265	0.56842
Consumer Value Perception	4.2600	0.62704
Environmental Awareness	3.7820	0.65203
Green Lifestyle Choices	4.2030	0.69195

The findings indicate that respondents generally prefer green brands and engage in environmentally conscious behaviors. Mean scores for independent variables range from 3.7820 to 4.348, indicating positive attitudes toward green marketing attributes like brand credibility, loyalty, expertise, consumer value perception, and environmental awareness. brand credibility scored the highest (4.348), suggesting strong trust in green brands.

Green lifestyle choices, the dependent variable, had a mean of 4.2030, indicating common eco-friendly practices, though variability exists (SD = 0.69195). Environmental awareness showed the highest variability (SD = 0.65203), reflecting differing levels of consciousness. Standard deviations across variables range from 0.44945 (brand credibility) to 0.69195 (green lifestyle choices), indicating moderate response variability. These results provide a basis for further analysis.

4.2 Reliability test

Table 2 summarizes the reliability analysis of six key constructs by comparing Cronbach's Alpha values from a pilot study (N=40) and a complete study (N=400). Each construct was measured using five items, and reliability was assessed to determine internal consistency.

In the pilot study, Brand expertise ($\alpha = 0.901$) exhibited excellent reliability, while the remaining constructs demonstrated good reliability. In the complete study, all constructs maintained acceptable to good reliability, with slight decreases in some alpha values. Green lifestyle choices ($\alpha = 0.870$) and consumer value perception ($\alpha = 0.858$) retained strong internal consistency, while brand credibility ($\alpha = 0.723$) and environmental awareness ($\alpha = 0.718$) remained acceptable. These findings confirm the measurement instrument's reliability for further statistical analysis.

Table 2. Reliability coefficient for pilot study and complete data set

Variables	Number of Items	Pilot Study (N=40)		Complete Study (N=400)	
		Coefficient (Alpha)	Results	Co-efficient (Alpha)	Results
Brand Credibility	5	0.836	Good	0.723	Acceptable
Brand Loyalty	5	0.857	Good	0.793	Acceptable
Brand Expertise	5	0.901	Excellent	0.839	Good
Consumer Value Perception	5	0.865	Good	0.858	Good
Environmental Awareness	5	0.802	Good	0.718	Acceptable
Green Lifestyle Choices	5	0.875	Good	0.870	Good

4.3 Factor analysis

Factor analyses are carried out on the complete dataset gathered from 400 respondents to investigate the underlying structure of both the independent and dependent variables in the study. This method was used to determine if the observed variables truly reflect the theoretical concepts. The goal of the analysis was to simplify the data by finding groups of related variables, referred to as factors.

KMO measure was calculated to determine the adequacy of the sampling for factor analysis. The KMO value obtained was 0.704, which falls into the "acceptable" range, suggesting that the dataset contains sufficient shared variance for an effective factor analysis. The analysis included Bartlett's Test of Sphericity, which produced a statistically significant outcome ($p < 0.001$) (Table 3). This indicates that there are acceptable correlations among the variables to proceed forward with factor extraction.

Principal Component Analysis (PCA) was used as the extraction method. The factor loadings for the items ranged from 0.672 to 0.900, exceeding the recommended value of 0.50. This confirms that the observed variables are strongly associated with their respective constructs and contribute significantly to explaining the variance within the dataset. The findings indicate a strong relationship between the observed variables and their corresponding constructs, playing a crucial role in determining the variance in the dataset.

The eigenvalue for the extracted factors was 5.306, suggesting that this factor explains a substantial amount of the variance in the dataset. The high eigenvalue shows that the independent variables—brand credibility, brand loyalty, brand expertise, consumer value perception, and environmental awareness—together form a significant factor impacting the dependent variable, green lifestyle choices.

Table 3. Result of KMO Bartlett test of sphericity

Variables	KMO Bartlett Test of Sphericity	Factor Loading	Eigen Value
Brand Credibility Brand Loyalty Brand Expertise Consumer Value Perception Environmental Awareness Green Lifestyle Choices	0.704	0.672-0.900	5.306

Table 4. Pearson correlation result

Variables	Brand Credibility	Brand Loyalty	Brand Expertise	Consumer Value Perception	Environmental Awareness	Green Lifestyle Choices
Brand Credibility	1	0.524**	0.439**	0.260**	0.122*	0.583**
Brand Loyalty	0.524**	1	0.692**	0.707**	0.306**	0.604**
Brand Expertise	0.439**	0.692**	1	0.806**	0.577**	0.639**
Consumer Value Perception	0.260**	0.707**	0.806**	1	0.681**	0.636**
Environmental Awareness	0.122*	0.306**	0.577**	0.681**	1	0.540**
Green Lifestyle Choices	0.583**	0.604**	0.639**	0.636**	0.540**	1

Note: **Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed).

Table 5. Model summary

Model Summary[b]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.793[a]	0.629	0.624	0.4242	0.629	133.523	5	394	< .001	1.623

a. Predictors: (Constant), Environmental_Awareness, Brand_Credibility, Brand_Loyalty, Brand_Expertise, Customer_Value_Perception
b. Dependent Variable: Green_Lifestyle_Choices

4.4 Pearson correlation

Pearson Correlation Analysis was conducted to evaluate the relationships between the independent variables (brand credibility, brand loyalty, brand expertise, environmental awareness, and consumer value perception) and the dependent variable (green lifestyle choices). The correlation coefficients (r) and significance values (p-values) are presented in Table 4.

The Pearson correlation analysis revealed statistically significant moderate positive relationships between all independent variables and green lifestyle choices. Among the variables, Brand expertise exhibited the highest correlation coefficient ($r = 0.639$, $p < 0.001$), indicating that a brand's expertise in sustainable practices strongly influences consumers' likelihood of adopting green lifestyles. Similarly, Consumer value perceptions showed a strong positive association ($r = 0.636$, $p < 0.001$), suggesting that when consumers perceive high value in eco-friendly products, they are more inclined to make sustainable lifestyle choices. Brand loyalty ($r = 0.604$, $p < 0.001$) and brand credibility ($r = 0.583$, $p < 0.001$) also demonstrated significant moderate relationships with green lifestyle choices. This highlights the importance of trust and loyalty to eco-conscious brands in shaping consumers' sustainable behaviours. Lastly, environmental awareness showed the lowest but still meaningful correlation ($r = 0.540$, $p < 0.001$), indicating that while awareness of environmental issues contributes to the adoption of green lifestyles, its influence is slightly weaker compared to other factors.

The results suggest that brand-related factors such as expertise, loyalty, and credibility, as well as consumer-related factors like value perception and environmental awareness, play a crucial role in promoting green lifestyle choices among Malaysian consumers.

4.5 Multiple regression

Multiple regression analysis was employed to evaluate how factors such as brand credibility, brand loyalty, brand expertise, consumer value perception, and environmental awareness influence green lifestyle choices. By analysing these relationships, this study is able to identify the most significant predictors of green lifestyle adoption among Malaysian consumers.

Based on Table 5, the multiple regression model yields an R-value of 0.793, showing a strong positive linear relationship between the independent variables and the dependent variable. The R Square (R^2) value is 0.629, meaning that 62.9% of the variance in green lifestyle choices can be explained by independent variables such as brand credibility, brand loyalty, brand expertise, consumer value perception, and environmental awareness. The Adjusted R^2 value of 0.624 adjusts for the number of predictors in the model and confirms that the model is reliable, reflecting over 62% of the variability. The study shows that the independent variable does have a significant effect on the dependent variable.

In this study, the Durbin-Watson statistic was used to assess the presence of autocorrelation, with values ranging from 0 to 4 [73]. The obtained Durbin-Watson value of 1.623 falls within the acceptable range of 1.5 to 2.5, indicating no significant autocorrelation in the residuals. The absence of autocorrelation ensures that the regression model meets a key assumption, enhancing its reliability and overall validity.

Table 6. ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	120.137	5	24.027	133.523	< 0.001[b]
Residual	70.9	394	0.18		
Total	191.036	399			

a. *Dependent Variable:* Green_Lifestyle_Choices

b. *Predictors: (Constant),* Environmental_Awareness, Brand_Credibility, Brand_Loyalty, Brand_Expertise, Customer_Value_Perception

Sources: Developed for research

Table 7. Coefficient analysis result

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	-1.497	0.232	—	-6.447	< .001		
Brand_Credibility	0.638	0.059	0.414	10.72	< .001	0.631	1.585
Brand_Loyalty	0.139	0.063	0.119	2.2	0.028	0.321	3.112
Brand_Expertise	0.032	0.07	0.026	0.46	0.653	0.282	3.543
Customer_Value_Perception	0.256	0.077	0.232	3.341	0.001	0.195	5.126
Environmental_Awareness	0.297	0.048	0.28	6.172	< .001	0.458	2.184

Sources: Developed for research

The Analysis of Variance (ANOVA) was conducted to evaluate whether the independent variables collectively influence the dependent variable by partitioning total variation into explained and unexplained components [74] (Table 6). The F-statistic determines the significance of the predictors in the model, with a high F-value indicating that the model explains the dependent variable better than random variation.

In this study, the F-value of 133.523, with a significance level of $p < 0.001$, confirms that the independent variables—brand credibility, brand loyalty, brand expertise, consumer value perception, and environmental awareness—have a substantial impact on green lifestyle choices. The statistically significant p-value reinforces the model's reliability, indicating that these relationships are not due to random chance. Additionally, the R^2 value of 0.629 reveals that these predictors collectively account for 62.9% of the variation in green lifestyle choices, highlighting the model's effectiveness in analyzing consumer behavior in Malaysia.

The regression coefficients (Table 7) provide insight into how each independent variable influences green lifestyle choices. The unstandardized coefficients (B) indicate the extent of change in the dependent variable for a one-unit increase in each predictor. Among them, brand credibility has the strongest positive influence ($B = 0.638$, $p < 0.001$), followed by environmental awareness ($B = 0.297$, $p < 0.001$) and consumer value perception ($B = 0.256$, $p < 0.001$). Brand loyalty also has a meaningful effect ($B = 0.139$, $p = 0.028$), while brand expertise is not statistically significant ($B = 0.032$, $p = 0.653$).

Standardized coefficients (Beta) highlight the relative strength of each variable's influence. Brand credibility exerts the strongest effect ($\beta = 0.414$), followed by environmental awareness ($\beta = 0.280$) and consumer value perception ($\beta = 0.232$). Brand loyalty plays a moderate role ($\beta = 0.119$), whereas brand expertise has a minimal impact ($\beta = 0.026$). The *p*-values confirm that brand credibility, environmental awareness, consumer value perception, and brand loyalty significantly predict green lifestyle choices ($p < 0.05$). In contrast, brand expertise does not contribute meaningfully ($p = 0.653$). Collinearity statistics confirm that tolerance values exceed 0.1 and VIF values remain below 10, indicating no multicollinearity issues.

The regression analysis identifies brand credibility, environmental awareness, and consumer value perception as the most influential factors in shaping green lifestyle choices, with brand credibility being the most significant. Brand loyalty has a moderate yet meaningful role, whereas brand expertise does not significantly impact green lifestyle adoption. These findings highlight the importance of building brand credibility, enhancing environmental awareness, and increasing perceived consumer value to promote sustainable behaviour.

4.6 SmartPLS analysis and results

SmartPLS 4 was utilized to analyze complex models with latent variables and small to moderate sample sizes. It assessed the measurement and structural models, ensuring reliability and validity through discriminant validity, average variance extracted (AVE), and composite reliability. The structural model analysis examined path coefficients, R^2 values, and significance levels, while predictive relevance (Q^2) and effect size (f^2) assessments provided insights into explanatory power.

The SmartPLS analysis of the structural model reveals key relationships between the independent variables (brand credibility, brand loyalty, brand expertise, consumer value perception, and environmental awareness) and the dependent variable, green lifestyle choices. With an R-squared value of 0.731, the model demonstrates strong predictive power and indicates that the independent variables account for about 73.1% of the variance in green lifestyle choices. A high R-squared value indicated that the selected predictors are collectively effective in explaining the adoption of green lifestyles among consumers. The R^2 value in Figure 2 (0.731) was derived from SmartPLS, which reflects variance explained in the structural equation model using PLS-SEM. In contrast, the R^2 value of 0.629 reported in Table 5 comes from SPSS multiple regression analysis. The higher R^2 in SmartPLS reflects the model's enhanced explanatory power when incorporating latent variable modeling.

The path coefficients provide insights into the relative impact of each independent variable. As shown in Figure 2 and confirmed in Table 8, brand credibility has the strongest positive influence on green lifestyle choices ($\beta = 0.478$), showing the importance of consumer trust in the brand when making environmentally conscious decisions. Environmental awareness also shows a good positive effect ($\beta = 0.323$), indicating that greater awareness of environmental issues encourages green lifestyle adoption. Similarly, Consumer

value perception demonstrates a moderate influence (β = 0.181), suggesting that consumers are more likely to choose green lifestyles when they perceive value in eco-friendly products or initiatives.

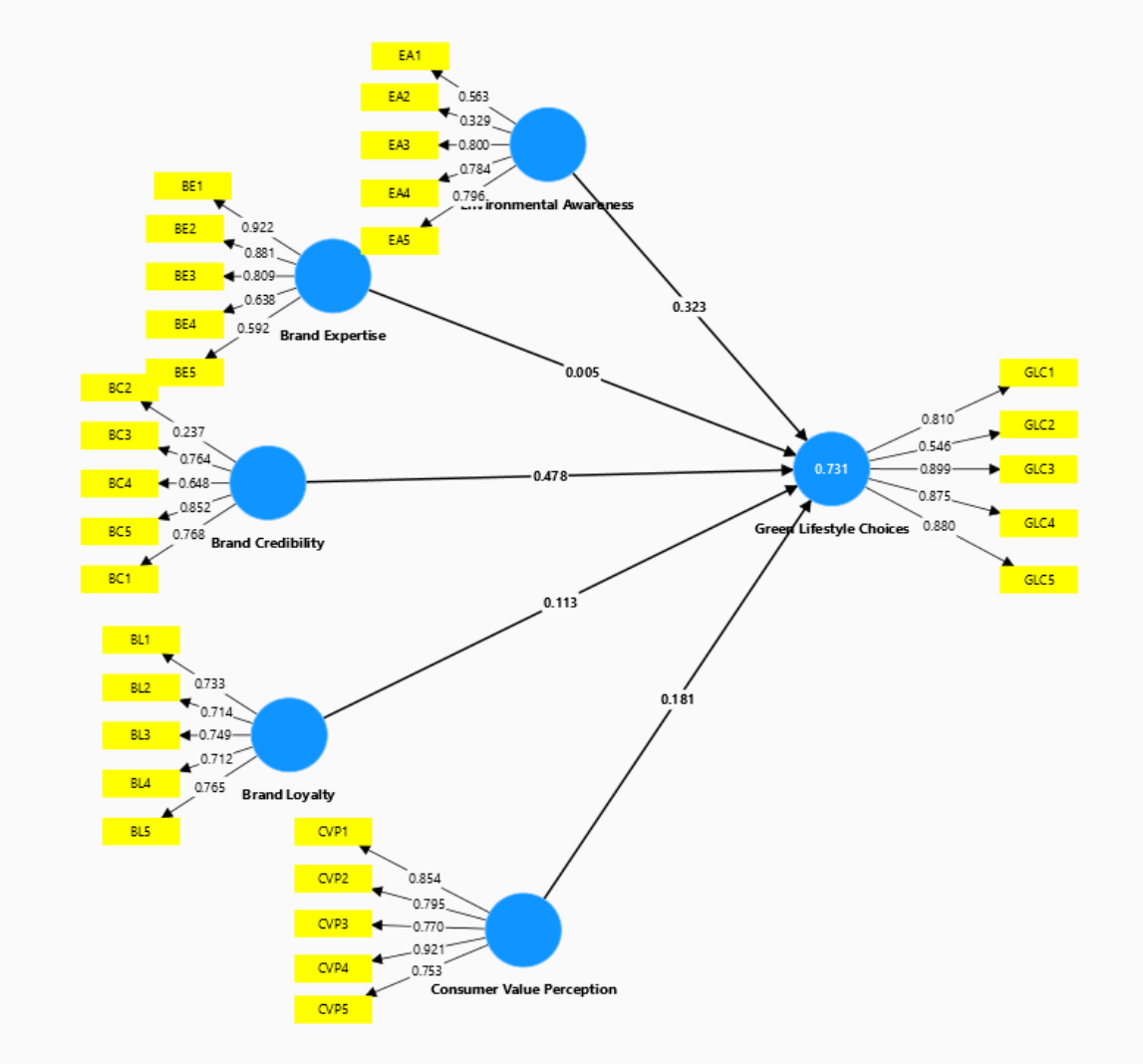

Figure 2. Structural model analysis and path coefficients using SmartPLS

Note: Blue arrows represent path coefficients (β) between latent constructs, indicating the strength and direction of relationships. Yellow arrows represent standardized factor loadings (λ) between observed indicators and their respective latent constructs. All factor loadings exceed 0.6, supporting construct validity.

Table 8. Summary of hypothesis testing

Hypothesis	Correlation Coefficient (r)	Unstandardized Coefficient (B)	Standardized Coefficient (β)	P-Value	Decision
H1: There is a positive relationship between brand credibility and green lifestyle choices among Malaysian consumers.	0.583	0.638	0.414	<0.001	Supported
H2: There is a positive relationship between brand loyalty and green lifestyle choices among Malaysian consumers.	0.604	0.139	0.119	0.028	Supported
H3: There is a positive relationship between brand expertise and green lifestyle choices among Malaysian consumers.	0.639	0.032	0.026	0.653	Not supported
H4: There is a positive relationship between consumer value perception and green lifestyle choices among Malaysian consumers.	0.636	0.297	0.232	<0.001	Supported
H5: There is a positive relationship between environmental awareness and green lifestyle choices among Malaysian consumers.	0.540	0.256	0.280	<0.001	Supported

Sources: Developed for research

Conversely, Brand loyalty has a weaker positive impact (β = 0.113), indicating that loyalty to eco-friendly brands plays a minor role in influencing green lifestyle choices. Lastly, brand expertise exhibits a negligible effect (β = 0.005), indicating that expertise in sustainability does not significantly relate to consumers in this study. All factor loadings exceed the acceptable threshold of 0.6, confirming the reliability and validity of the constructs. Furthermore, the high factor loadings across constructs such as green lifestyle choices (GLC1–GLC5) increase the strength of the measurement model.

4.7 Results of hypotheses

Table 8 presents the outcomes of the hypothesis testing based on the results from the multiple regression and correlation analyses. Each hypothesis is assessed to determine whether it is supported or rejected, using the statistical significance (p-value) and the strength of relationships (correlation coefficients and regression coefficients).

The results of the hypothesis testing provide insights into the relationships between the independent variables (brand credibility, brand loyalty, brand expertise, environmental awareness, and consumer value perception) and the dependent variable (green lifestyle choices). Out of the five hypotheses, four were supported.

i. H1 (Brand Credibility → Green Lifestyle Choices): A strong positive correlation (r = 0.583) and a significant standardized coefficient (β = 0.414, p < 0.001) suggest that brand credibility plays a crucial role in influencing green lifestyle choices. Consumers who trust green brands are more likely to adopt eco-friendly behaviours.

ii. H2 (Brand Loyalty → Green Lifestyle Choices): A moderate positive correlation (r = 0.604) is observed, but the impact is relatively weak (β = 0.119) compared to other factors. However, the relationship is still statistically significant (p = 0.028), indicating that brand loyalty has a minor yet meaningful effect on green lifestyle choices.

iii. H3 (Brand Expertise → Green Lifestyle Choices): Despite a strong correlation (r = 0.639), the standardized coefficient (β = 0.026) is very low and statistically insignificant (p = 0.653). This suggests that brand expertise alone does not significantly drive green lifestyle choices among consumers.

iv. H4 (Consumer Value Perception → Green Lifestyle Choices): A strong correlation (r = 0.636) and a substantial standardized coefficient (β = 0.232, p < 0.001) indicate that consumer value perception significantly influences green lifestyle choices. Consumers who perceive value in eco-friendly products are more inclined toward sustainable behaviours.

v. H5 (Environmental Awareness → Green Lifestyle Choices): A moderate-to-strong correlation (r = 0.540) and a significant coefficient (β = 0.280, p < 0.001) suggest that environmental awareness has a meaningful impact on green lifestyle choices. Higher awareness levels correspond with greater adoption of eco-friendly behaviours.

In conclusion, brand credibility, consumer value perception, and environmental awareness significantly influence green lifestyle choices. Brand loyalty has a weaker but significant effect, while brand expertise does not appear to have a meaningful impact. These results highlight the importance of trust, perceived value, and environmental consciousness in shaping sustainable consumer behaviour. Although the correlation analysis showed a positive relationship between brand expertise and green lifestyle choices, the regression and path analysis revealed that this relationship was not statistically significant, and therefore, Hypothesis H3 was not supported. This outcome suggests that brand expertise in sustainability, on its own, may not be a decisive factor influencing Malaysian consumers' adoption of green lifestyles.

5. RECOMMENDATIONS AND CONCLUSION

This section explores both the theoretical and practical implications of the findings, offering recommendations for businesses, policymakers, and future researchers to enhance sustainable practices and encourage consumer engagement with green lifestyle choices. It also acknowledges the study's limitations and suggests directions for future research to build on these insights.

1) Brand credibility stands out as the strongest predictor, demonstrating that consumer trust in green brands plays a key role in driving sustainable behaviors. Similarly, brand loyalty positively influences green lifestyle adoption, highlighting the importance of long-term relationships in fostering eco-friendly habits. Consumer value perception also plays a crucial role—when consumers perceive eco-friendly products as beneficial, they are more inclined to integrate green practices into their lives.
2) While environmental awareness is a significant factor, its impact is weaker compared to other predictors. This suggests that awareness alone is not enough to drive behavior change unless accompanied by tangible benefits or actionable steps. Brand expertise has the weakest and non-significant influence, indicating that technical knowledge alone does not directly encourage green behaviors unless effectively communicated and aligned with consumer trust.
3) The findings confirm that both brand-related and consumer-related factors shape green lifestyle choices. This study emphasizes the importance of brand credibility, consumer value perception, and environmental awareness in promoting sustainability, providing valuable insights for businesses and policymakers developing green marketing strategies in Malaysia.
4) One possible reason why brand expertise didn't significantly influence green lifestyle choices could be that consumers don't recognize or relate to it. If a brand's sustainability efforts aren't communicated in a clear and relatable way, people may overlook them. In a country like Malaysia, people are more likely to respond to brands they trust or feel loyal to, rather than those that just claim to be sustainable. Hence, even if a brand is highly knowledgeable about sustainability, it might not matter much unless that expertise is paired with trust and clear personal benefits for the consumer.
5) Compared to previous research, brand credibility remains the most influential factor in driving green lifestyle choices among Malaysian consumers. Trust and transparency in green marketing are essential, especially in mitigating concerns about greenwashing. The study's high correlation coefficient (r = 0.583) and regression

coefficient (β = 0.414) further reinforce the significant role of brand credibility in shaping sustainable behaviors. However, differences arise in the impact of other factors. Jayabalakumar's study suggests that brand loyalty is a stronger driver of green behavior, attributing this to Malaysia's collectivist cultural tendencies [75]. In contrast, this study finds Brand loyalty to have a smaller but still significant effect (β = 0.119), suggesting that while loyalty plays a role, brand credibility and perceived value have a more dominant influence.

6) Another notable distinction is in the role of environmental awareness. Jayabalakumar's research highlights its primary importance in motivating green behavior, whereas this study finds its influence to be moderate (β = 0.280). This indicates that while awareness helps raise eco-consciousness, it may not necessarily lead to action unless supported by additional factors like perceived value or brand credibility.

This study provides significant applications across business, theoretical, and societal domains, offering insights into the factors influencing green lifestyle choices among Malaysian consumers. These findings not only guide business practices but also contribute to the academic understanding of sustainable consumer behaviour and support societal initiatives aimed at promoting sustainability.

5.1 Managerial implications

From a business standpoint, this study highlights the critical role of brand credibility, loyalty, and expertise in shaping consumer preferences for eco-friendly products. To build trust, companies must prioritize transparent communication about their sustainability efforts, clearly outlining eco-friendly initiatives and responsible sourcing practices. Using third-party certifications can help validate these claims and set brands apart from competitors that engage in greenwashing. Marketers should design inclusive campaigns that reach diverse demographics, particularly marginalized communities in rural and lower-income areas. Offering affordable green products and emphasizing their long-term cost-saving benefits can encourage adoption among price-sensitive consumers [76].

Collaboration between businesses and policymakers is essential in driving sustainability. Joint initiatives—such as eco-labels, community recycling programs, and incentives for sustainable consumption—can help make green products more accessible and appealing to a wider audience. Additionally, educational programs should focus on the financial and health advantages of eco-friendly products, using clear and engaging messaging across multiple platforms to maximize impact. By implementing these strategies, businesses and policymakers can effectively promote green lifestyles and contribute to a more sustainable future.

5.2 Academic implications

This study enriches the academic understanding of green consumer behavior by integrating brand-related factors with consumer perceptions into a unified framework. By leveraging advanced analytical techniques like SmartPLS, the research builds on established theories, including the TPB and the consumer value perception (CVP) model. These contributions strengthen the reliability of existing theoretical models and provide a more comprehensive perspective on green lifestyle adoption. Furthermore, the findings create opportunities for future research to explore additional influencing factors and examine similar trends across different cultural and economic contexts.

Policymakers and educators can apply these insights to develop public campaigns that bridge the gap between awareness and action, highlighting both the financial and environmental benefits of green products. Such initiatives can play a key role in encouraging the widespread adoption of sustainable lifestyles. Additionally, the study provides actionable recommendations, including offering incentives to support eco-friendly businesses, strengthening regulations against green washing, expanding consumer education programs to enhance sustainability awareness. By implementing these strategies, Malaysia can advance its sustainability goals, fostering a more environmentally conscious and responsible society.

5.3 Limitations of the study

This study has some limitations that should be acknowledged. Purposive sampling was used, focusing primarily on consumers who are already engaged in green behaviors. As a result, the findings may not fully represent the broader population, particularly individuals who have yet to adopt sustainable practices. Additionally, rural and economically disadvantaged groups- who often face barriers to green lifestyle adoption—were not included. Future research should consider using probability sampling to capture a more diverse and representative sample, providing a comprehensive understanding of green consumer behavior. Another limitation is the cross-sectional design of this study, which captures consumer attitudes at a single point in time. This approach limits the ability to track how green lifestyle choices evolve in response to external factors, such as policy changes and economic fluctuations. A longitudinal study would offer valuable insights into these long-term shifts, helping businesses and policymakers develop sustainable strategies that remain effective over time.

Furthermore, the study relied solely on quantitative methods, which effectively identify statistical relationships but do not fully explore the underlying motivations behind consumer choices. Future research could benefit from a mixed-methods approach, incorporating qualitative insights through interviews or focus groups. This would provide a deeper understanding of the personal and societal factors influencing green lifestyle adoption, allowing businesses and policymakers to design more targeted and impactful sustainability initiatives.

5.4 Recommendations for future research

To enhance the breadth and applicability of findings, future research should adopt probability sampling methods to ensure a more inclusive demographic representation. This would provide valuable insights from both urban and rural populations, as well as individuals across different socioeconomic backgrounds. Understanding the specific challenges faced by vulnerable groups—such as lower-income individuals, who may find green products financially inaccessible, or rural communities with limited access to sustainable options—would help inform targeted solutions [77]. Future studies can examine how well consumers understand sustainability, how brands present their messages, or how visible eco-certifications are can change how people

respond to brand expertise.

Additionally, longitudinal studies tracking consumer behavior over time would offer a deeper perspective on how attitudes, preferences, and behaviors evolve in response to economic shifts, policy changes, and innovations in eco-friendly products. This approach would provide a more dynamic understanding of green lifestyle adoption and the factors that sustain long-term engagement. To further enrich insights into consumer behavior, future studies should incorporate qualitative research methods, such as in-depth interviews or focus groups. These approaches can reveal the cultural, emotional, and personal motivations behind green lifestyle choices, helping explain why consumers prioritize brand credibility or what drives their commitment to sustainability.

Finally, future research should explore the impact of government interventions, such as subsidies for eco-friendly products and public awareness campaigns, in encouraging greater consumer participation in sustainable practices. Understanding the effectiveness of these initiatives would help policymakers develop more impactful strategies to mainstream green consumption.

5.5 Conclusion

This study examined the factors influencing green lifestyle choices among Malaysian consumers, focusing on brand credibility, brand loyalty, brand expertise, environmental awareness, and consumer value perception. Using quantitative methods like factor analysis, reliability testing, Pearson correlation, multiple regression, and Smart PLS analysis, the findings highlighted the significant impact of these variables on green lifestyle adoption. Brand credibility and Loyalty were found to be key drivers, emphasizing the importance of genuine and transparent environmental claims, while environmental awareness underscored the need for consumer education to promote sustainability. Consumer value perception also played a role, with consumers considering the costs and benefits of green products.

This research contributes to the literature on green marketing and sustainable consumption in Malaysia, offering both theoretical insights and practical recommendations. It bridges gaps by applying the TPB and CPV model, enhancing the understanding of consumer motivations. The study advocates for more inclusive research, including diverse samples, longitudinal studies, and qualitative methods to gain deeper insights. The findings highlight the shared responsibility of businesses, consumers, and policymakers in promoting sustainability, offering a foundation for more targeted strategies aligned with Malaysia's sustainability goals and global environmental initiatives.

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